



## Early Journal Content on JSTOR, Free to Anyone in the World

This article is one of nearly 500,000 scholarly works digitized and made freely available to everyone in the world by JSTOR.

Known as the Early Journal Content, this set of works include research articles, news, letters, and other writings published in more than 200 of the oldest leading academic journals. The works date from the mid-seventeenth to the early twentieth centuries.

We encourage people to read and share the Early Journal Content openly and to tell others that this resource exists. People may post this content online or redistribute in any way for non-commercial purposes.

Read more about Early Journal Content at <http://about.jstor.org/participate-jstor/individuals/early-journal-content>.

JSTOR is a digital library of academic journals, books, and primary source objects. JSTOR helps people discover, use, and build upon a wide range of content through a powerful research and teaching platform, and preserves this content for future generations. JSTOR is part of ITHAKA, a not-for-profit organization that also includes Ithaka S+R and Portico. For more information about JSTOR, please contact [support@jstor.org](mailto:support@jstor.org).

but also emphasizes, in the most helpful and forceful way, the importance of studying the condition and needs of individual pupils.

The special field of the book is normal school work; but it is admirably adapted to the needs of teachers' meetings in city and village schools, and to teachers' classes in high schools and academies.

The six chapters deal with the knowing powers only, and make no claim to an exhaustive treatise; their aim is rather "to develop the real psychological knowledge and power necessary to pursue the subject understandingly, either in books or in daily life, and in the schoolroom." They are merely an introduction to the study of mental phenomena, and probably will be followed in a new edition by similar chapters on the "Feelings and the Will."

*Manfred James Holmes*

*An Academic Algebra.* By JAMES M. TAYLOR, Professor of Mathematics in Colgate University. Boston: Allyn & Bacon, 1893. pp. x+338.

This book is intended for secondary schools and professes to "cover ground sufficient for admission to any American college or university." The language seems to be rather strong; we think we know of some American universities to enter whose freshman class and to keep up with it would call for uncommonly perfect mastery of this volume. Enough or nearly enough subjects are indeed broached, of which symmetry is unfortunately not one, but of some the discussion is hardly adequate. The addition of say twenty or thirty pages would make the work, for its declared purpose, much more satisfactory. Nevertheless, its merits are certainly very notable and face the reader on almost every page. It lays unusual but not undeserved emphasis upon the laws of operation, which really constitute the definitions of addition and multiplication. It pushes the equation to the front and at the very outset convinces the student of the practical importance of the subject in hand as an instrument for solving every-day problems. It conceives properly the solution of equations of higher degree as a resolution into linear factors to be equated separately to zero—a conception of prime importance in more advanced study. These commendable features and others that might be named are not, to be sure, unknown to the better algebras, such as Chas. Smith's and Hall and Knight's, not to mention Chrystal's, but it is none the less pleasing to find them made so prominent and even regulative in an American text.

The general air of this algebra is very business-like; the author wastes few words in preliminaries but closes quickly and earnestly with matters as they come to hand. The problems are exceedingly numerous and apparently well-chosen, and on the whole the

book would seem to be eminently teachable. The author has strengthened the common presentation by calling particular attention to the doctrine of equivalent systems of equations, and has briefly sketched the theory of limits, making one extremely important application of it to the doctrine of incommensurables, for which he will receive thanks from teachers of algebra.

And yet, in spite of, or rather say because of the many conspicuous merits of the work, one lays it down with a feeling of dissatisfaction or even vexation. The good is the enemy of the best, and we cannot help asking, why is a book so very good not a great deal better? Why has the author fallen short of an ideal that he has drawn so provokingly near? It is not difficult to point out where the work seems incomplete and below the standard which itself so forcibly suggests. Thus, it can hardly be that it is measurement that yields us primarily the notion of number. This latter is the abstract of repetition and originates in counting. Perhaps it might be replied that counting is a kind of measurement, but at any rate it is altogether too important not to deserve special recognition. It is only in connection with this idea that the laws of operation appear in their proper light as simply declaring the observed equivalence of different ways of counting. From this point of view it is easily seen that, only direct operations being admitted, the domain of natural numbers in *closed*; and that this domain is opened and the successive annexation of negatives, fractions, radicals and all irrationals including imaginaries is rendered imperative by introducing inverse operations and by the general problem of rendering all manner and combinations of inversions possible. Moreover, in a book that justly grounds on the laws of operation, we naturally look for the statement that they are given in experience primarily for count-numbers, and that their application is extended to other numbers according to Hankel's principle of the permanence of the formal laws of operation. The general superiority and prevailing modern spirit of the work lead us to expect all this, none of which is more out of place than the laws themselves in an elementary text, and we are disappointed at not finding it. The old error of defining a limit as a constant, to which a variable may be brought close at will, is unhappily repeated; no hint is given that it is equally necessary that we be able to keep the variable close at will to the constant through all succeeding stages of its value. But it is an ungrateful task to remark defects in a production in the main so excellent. Prof. Taylor's book is a hopeful sign of the times, and teachers that use it—of whom may there be many—will almost certainly be pleased. It remains but to add that the mechanical execution is admirable.

W. B. Smith

Tulane University